

REMARKS

This Response addresses the issues raised by the Examiner in the Office Action mailed August 5, 2003. In view of the above amendments and the following remarks, Applicants feel that all outstanding issues have been addressed, and prompt allowance of the remaining claims is respectfully requested.

Initially, Applicants would like to note that the Examiner has now removed the indication of allowability of Claims 1, 18, 30-31 and 59-69. As explained below, the newly cited prior art is directed to additional "coating" applications of electrophoretic deposition, as described in the background of the specification. There is no information within these references that should have affected allowability as they are duplicative of previously cited references.

§102 Rejections

Initially, the Examiner rejected Claims 1, 32-33, 35-36, 40-41, 70, 72, 74 and 78 under 35 U.S.C. §102(b) as being anticipated by European Patent Publication No. 475,592 ("the '592 Publication"). The '592 Publication is generally directed to a coated article having improved adhesion to organic coatings. The '592 Publication is not related to electrophoretic deposition and is, therefore, not related to the claims of the present invention.

The Examiner also rejected Claims 1, 18, 30, 32-35, 37-38, 40-44, 46-51, 59-61, 63, 68-70, 72-74, 77-83, 85-86 and 88-96 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,865,703 to Jagannathan ("Jagannathan"). Specifically, the Examiner held that Jagannathan teaches a particulate magnetic recording media comprising a first material (or at least two components) wherein at least one of said components is electrophoretically deposited. Applicants disagree with the Examiner's characterization of Jagannathan and its applicability to the present claims.

In short, Jagannathan teaches a method for creating a magnetic recording medium that is suitable for perpendicular recording. As shown in FIG. 15, an electrophoretic deposition bath is used to deposit a thin layer (approximately 10 microns thick – col. 8, lines 17-19) to coat a substrate with a purportedly increased packing density. There is no teaching or suggestion in Jagannathan (or in any other reference of which Applicants are aware), of removing the electrophoretically deposited “coating” from the carrier to create a carrier-independent particulate tape.

The present invention, on the other hand, is directed to particulate tapes, and, more specifically, to methods for manufacturing particulate tapes, that include one or more components that have been electrophoretically deposited. Either during the deposition or in a subsequent process step, a binder is applied to the deposited material and it is removed from the carrier such that the material stands on its own as a particulate tape, or component thereof, independent from the carrier. Clearly, there is no suggestion in Jagannathan that the 10 micron thick “coating” is subsequently removed from its carrier (which it is not) to form a particulate tape.

Applicants believe that the previously presented claims are directed to this distinction over the prior art. However, because the present prosecution has been so severely delayed as a result of misrepresentations made by the previous (not the present) Examiner, Applicants sincerely desire that the current prosecution be advanced to issuance. Applicants believe that the presentation of certain claims directed to the particulate tape itself, rather than the method claims describing the manufacture thereof, are unnecessarily distracting the prosecution from the true nature of the invention. To address this concern, Applicants have elected to cancel the device (particulate tape) claims (Claims 1, 18, 32-58, and 70-96) without prejudice and have elected to focus on the existing method claims (including some particulate tape claims that have been converted into method claims herein), in

combination with several clarifying method claims presented herein (new Claims 97-107)

Claim Amendments and New Claims

Method Claims 59 and 108 (which is a conversion of previous tape Claim 32) are illustrative of inventive processes which include an early step of depositing a particulate material onto a carrier (which may be patterned) and subsequently removing the deposited material from the carrier to form a particulate tape or component thereof. In other words, the deposited particulate can stand on its own as a component of a particulate tape, independent from the carrier. Dependent claims related to these independent method claims introduce concepts such as: adding a binder (either by electrophoretic deposition or spraying); including multiple conductive patterns on the carrier; and subsequent lamination steps. New Claims 101-107 extend this core concept to include additional method steps needed to create an electronic device incorporating the deposited tape.¹

Importantly, when discussing the applicability of Jagannathan to the claims of the present invention, the Examiner states that: “The particulate media is deposited on a substrate that is on a carrier wherein the electrodes are energized, thereby resulting in a particulate media that is substantially continuous and removable from a carrier ... “ (emphasis added). In fact, Jagannathan has no specific mention of the deposited coating being “removable” from the carrier. A closer reading of Col. 7, line 63 to Col. 8, line 23 of Jagannathan shows that, as with all previous electrophoretic deposition applications, the “coating” is not removed

¹ It should be noted that “new” Claims 101-107 are merely method-based version of previously submitted device Claims 52-58 and do not, therefore, introduce new subject matter into the present prosecution.

from the carrier (which would make little sense in the context of Jagannathan). The carrier in Jagannathan (the cathode 60) is used as a substrate for the deposition, but the deposited layer is not removed therefrom.

Removing the deposited material from the carrier in order to produce a carrier-independent particulate tape is a key aspect of the claims. Because the deposited component of the present invention exists on its own as a particulate tape or component thereof (infused with a binder), it must have sufficient structure to continue to exist separate from the carrier. This allows the particulate tape to be removed from the carrier as a lone tape, to be sintered and laminated into an existing device stack, or to be utilized in any of a variety of other applications as described in the specification. Applicants are not aware of any existing reference that describes a process whereby a deposited component is removed from the carrier to produce a particulate tape.

The claims, as originally presented, illustrate this point by claiming a "particulate tape" as defined within the specification and as argued in previous office actions (*See Response and Amendment dated February 4, 2002*). However, the present Response and Amendment focuses on the method claims that specifically include a step in which the deposited material is removed from the carrier. The few "apparatus" claims (e.g., Claims 63-68) that remain include a means for effecting the removal of the novel methodology. These claims are allowable for all the reasons described above.

Additionally, other claimed features are not found in Jagannathan or the prior art. For example, the use of a patterned electrode (e.g., Claim 60) or multiple patterned electrodes on a single carrier allows partial layers and multiple successive component layers to be deposited onto the carrier (or previous layers) with a high degree of accuracy. This accuracy prevents air pockets or other discontinuities that may cause de-lamination and allows for internal features such as vias to be directly deposited.

§103 Rejections

The Examiner also rejected Claims 31, 45, 48, 62 and 64-67 under 35 U.S.C. §103(a) as being unpatentable over Jagannathan and Claims 36, 39, 71, 75-76, 71, 84 and 87 over Jagannathan in view of U.S. Patent No. 5,175,928 to Grabbe ("Grabbe") and "Electrophoretic Deposition – A Review ("Gani"). None of these references, alone or in combination render the newly amended claims obvious for all of the reasons discussed above.

The above amendments and accompanying remarks address each and every concern raised by the Examiner in the Office Action. Based on these clarifying amendments, Applicant believes that all claims of the present invention are now in condition for final allowance. Each of these amendments is fully supported throughout the specification, and no new matter is introduced by these amendments. If the Examiner feels that any issues remain outstanding, the Examiner is encouraged to contact Applicant's attorney at the contact information below.

Respectfully submitted,

Dated: February 5, 2004
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